Chapter 1

Introduction

In this chapter, we provide a literature overview of research activities in frontiers between neurosciences and economy, finances, philosophy, politics and marketing with the aim of helping the reader to understand what has already been done in these interdisciplinary research frontiers. From this point of view, it is not an extensive literature review, because it is influenced by predominance of research on economy and finances and by a more academic discussion in other areas of social sciences. Information provided here is intended essentially to provide the literature background required to support the understanding of the subsequent chapters.

1.1 Economy and Finances

The use of neuroscience technologies to analyze how the brain makes financial decisions is very recent. One of the first investigations that join neuroscience and finance was done by Gehring and Willoughby (2002). These authors used electroencephalogram (EEG) to record brain activity associated with a financial game playing. They found that a negative component of event-related brain potential peaking around 265 ms, and probably generated by the anterior cingulated cortex, was greater in amplitude when a participant's choice between two alternatives resulted in a loss than when it resulted in a gain. Some years later, Kuhnen and Knutson (2005) found that nucleus accumbens is activated before people make risky decisions as well as risk-seeking mistakes, whereas the anterior insula area is